

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project

Date November 20, 1951 Author R. I. Washburn

TITLE

BARK BEETLE INFESTATION CONDITIONS
DEADWOOD AREA, BOISE N. F., IDAHO

Fall 1951

Appraisal Survey

Forest Insect Laboratory
Room 387 Federal Bldg.
P.O. Box 731, Ogden, Utah

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Office Memorandum • UNITED STATES GOVERNMENT

387 Federal Bldg., P.O.Box 731, Ogden, Utah

TO : W. L. Robb, Assistant Regional Forester, USFS, DATE: November 20, 1951
Region IV, Ogden, Utah
FROM : L. W. Orr, Entomologist in Charge, Forest Insect
Laboratory, Ogden, Utah
SUBJECT: Bark Beetle Survey, Deadwood Area, Boise N. F.

[Handwritten initials: JWS, JAC, WLR]

I am enclosing four copies of Mr. Washburn's report on his survey of bark beetle infestation conditions in ponderosa pine stands in the Deadwood area on the Boise National Forest. Two of these are intended for the Forest and you may wish to forward the fourth one to the Chief Forester.

The data obtained by this survey indicate that the control work conducted last spring accomplished what it was intended to do. It is unfortunate that money and manpower were not available for additional work this fall. However, the number of trees to be treated is relatively small as compared with the number treated last June and July. Most of the necessary truck roads are in and it should be possible to use the same camp site. Start of the project can probably be delayed until about June 1 when the cost of opening the road will be much less than it was this past season. On the other hand, the infested trees are scattered over a considerably larger area, which will tend to increase the cost per treated tree.

The area between Three Mile Creek and Packsaddle Creek, between Deadwood River and Scott Mountain road, was included in our survey this year. No concentration of infestation was found although infested trees are scattered throughout the area. The cost of treating such an infestation would be very high and we doubt that it would be justified, especially since it is likely that the area can be opened to logging by sometime in 1953.

We therefore recommend that \$20,000 be provided for treating approximately 800 infested trees between Deadwood Reservoir and Whitehawk Basin, as requested in the Region's report of October 30. This recommendation is contingent upon approval of construction of an access road and a timber sale which will permit removal of most of this timber by the fall of 1953 or early in 1954. Otherwise, money spent for beetle control will be wasted, since it is unlikely that we can do more than retard the rate at which beetles are killing this timber.

The control method recommended for use in 1952 will be the same as was used this past season. The Forest evidently has enough ethylene dibromide on hand to treat about 800 trees.

It is not anticipated that there will be any need for further control work in the Deadwood area after July 1, 1952.

L. W. Orr

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~~WASHINGTON 25, D.C.~~

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By

R. I. Washburn

Introduction

During the fall of 1950 reports were received of dying ponderosa pine trees between Deadwood Reservoir and Whitehawk Basin on the Boise National Forest in Idaho. Ground and aerial survey work in October resulted in an estimate of 2000 trees infested by the western pine beetle, Dendroctonus brevicornis and/or the mountain pine beetle, D. monticolae. Two "hot spots" on Warm Springs Creek and Whitehawk Creek were estimated to contain about 1200 of these 2000 trees. In addition to the complication of having two species of Dendroctonus in outbreak numbers in the area it was found that the needle cast disease, caused by Elytroderma deformans, was very prevalent and had killed or weakened many trees.

It was therefore recommended that an attempt be made to arrange for immediate salvage logging of the timber in the Deadwood-Whitehawk Basin area, rather than to try artificial control methods. However, logging was considered impossible, by logging companies contacted, unless a new road down the Deadwood River was constructed. The possibility of building such a road was studied thoroughly by the Forest Service and logging companies interested in the timber. In late January and early February 1951 Mr. Milford Page, Forest Service engineer, a representative of the Boise-Payette Lumber Company, and Woodrow Doupe, Boise Forest, made a reconnaissance trip on skis down the river to pick a tentative route and to obtain an estimate of construction time and cost of the road. Their report indicated that the 23 mile river road would take at least two seasons to build.

When it was found that salvage logging could not begin for at least two years it became apparent that artificial control measures were

necessary if excessive beetle-caused losses were to be prevented. A request for control funds was submitted to Washington and plans for control work were developed. It was expected that the old out-peel-burn method would be used but after a small amount of preliminary testing with a closely related species, Dendroctonus barberi, on the Dixie Forest we decided to gamble on the effectiveness of a fuel oil solution of ethylene dibromide used as a penetrating spray.

The 1951 Control Project

The control project got under way on May 7 when a road crew began removing snow from the Landmark to Deadwood Reservoir road. By the 28th of May the 30 miles of road was clear of snow and ready for the project traffic. Power wagon road construction began June 1 followed by the training of spotters and string layers on June 4, and actual tree treating began June 11. It was recognized that most of the trees contained bark beetle brood above the height that could be treated from the ground (30 ft.). The treating procedure adopted involved spraying all infested trees standing. The trees that contained brood above the height that could be sprayed standing were felled by contracted "fellers". Additional treating crews then sprayed the infested boles above the standing treatment. The project was completed on July 10 with a total of 2,247 trees treated. Unfortunately, several hundred of these trees were left standing, without the upper part of their boles being sprayed, because of lack of time to complete the job before the new adult beetles began to emerge.

Conditions In The Fall Of 1951

On September 5, 1951 a 5% survey was started to determine the value of the spring treatment and to gather data necessary for any future control operations.

Survey Methods

A 5% line-plot survey was employed. A 1/5 acre circular plot was taken at every two chain interval along parallel lines 20 chains apart. The lines were run in cardinal directions, and were tied in with section corners to facilitate mapping. The cardinal directions that ran across the contours was used. All new attacks were recorded as western pine beetle attacks or as mountain pine beetle attacks. Whenever combinations of the two species were found they were tallied as Western pine beetle attacked trees. "Pitch Outs" and "treated trees" were also recorded. The recording of treated trees was done to produce a guide to the accuracy of the survey. An analysis of the number of treated trees found on the survey plots gave an estimate of 2180±599 treated trees. This estimate is 67 trees less than the actual number of trees treated (2,247).

Since a known 5% of the area was covered and because the treated tree tally shows it represented very close to 5% of the actual number treated it can be assumed that the ponderosa pine trees found on the survey plots approach 5% of the total ponderosa pine trees in the area. It can then be concluded that a reliable estimate of the new attacks, present in the area at the time of survey, was obtained.

Survey Summary

The 1951 fall survey was conducted to determine the effectiveness of the spring control job and to produce estimates to be used for planning future control operations. The survey was expected to show how many trees were infested by the July flight of the western pine beetle and the August flight of the mountain pine beetle. The survey indicates with reasonable accuracy the reduction of infested trees obtained by spring treating but additional survey lines will have to be run in the spring to produce an estimate of the trees attacked by the fall emergence of the western pine beetle.

The Wilson-Warm Springs-Whitehawk Unit of 6,656 acres contains an estimated 880 ± 269 trees attacked by western pine beetle, mountain pine beetle or a combination of the two. It is highly probable that over 90% of the infested trees are located within 4,124 acres on the lower parts of the creek drainage. The 1951 control unit harbors 560 ± 161 new attacks which represent a 75% reduction from the 2247 trees treated. A large, "hot spot" is present in Whitehawk; the rest of the attacks are scattered throughout the Wilson and Warm Springs drainages. The Wilson-Warm Springs-Whitehawk Unit should be treated in order to further reduce timber loss caused by bark beetles. This action is necessary to accomplish the objective of holding bark beetle loss to a minimum until an access road can be built.

The 4,376 acres west of the Deadwood River known as the Three Mile-Packsaddle Unit contains 240 ± 90 widely scattered bark beetle infested trees. Control action on this unit does not appear to be necessary at this time in order to hold the epidemic in check.

Wilson-Warm Springs-Whitehawk Creeks Unit

This unit includes the 1951 spring control unit plus ponderosa pine type adjoining the control boundaries. The survey covered 6,656 acres in Wilson, Warm Springs and Whitehawk Creeks. The survey estimate of 880 ± 269 trees includes 560 ± 161 located within the control boundaries. The new attacks found on lines run in Whitehawk represent 61% of the new attacks found on lines in the control unit, and 40% of the newly infested trees found on lines east of the Deadwood River.

The difference between the treated trees (2247) and the new attacks found on the control unit (560) represents a 75% reduction in infested

trees. It is difficult, however, to determine the real effectiveness of the treatment since many of the new attacks found within the control area were infested from "bug trees" outside the control boundaries.

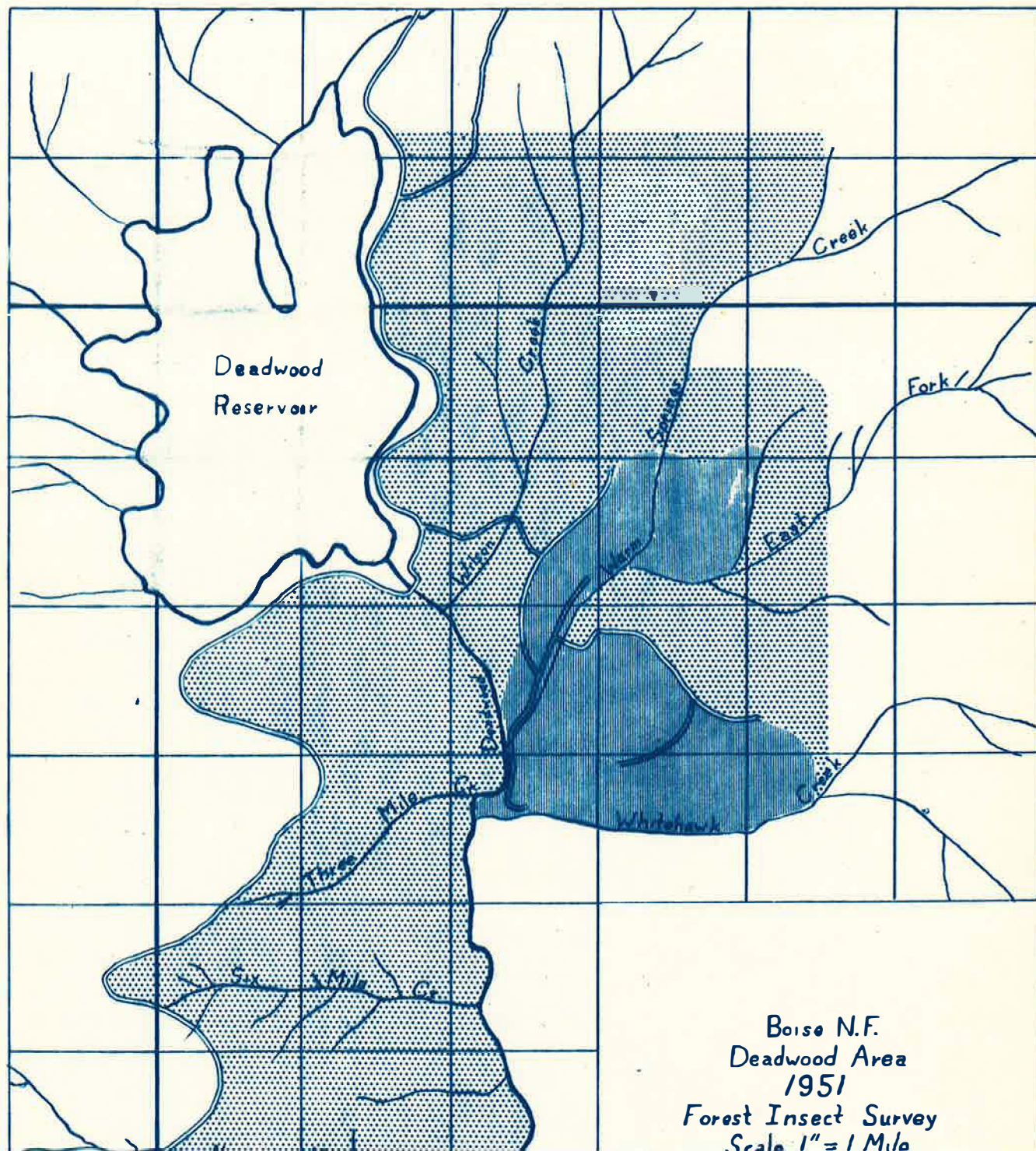
Spring of 1952 control operations should be directed towards 4,124 acres on which in excess of 90% of the new attacks found by the fall survey were located. The area, as outlined on the map, includes portions of sections 3-4, ⁵⁻⁸⁻¹⁴ all of 9-10-16-15 east of the Deadwood River and the parts of sections 21-22, ²⁷ north of Whitehawk Creek, all of which are in T11N., R.7E.

Three Mile-Packsaddle Creeks Unit

The Three Mile-Packsaddle Creeks Unit is an area of 4,376 acres, bounded by the Deadwood River, the Scott Mountain road and Packsaddle Creek. The estimate of 240±90 new attacks is based upon 12 widely scattered new attacks found on plots within the area. This area, which is just across the Deadwood River from the control unit, is a possible source of reinfestation to the Wilson-Warm Springs-Whitehawk area but the present infestation is so scattered that control seems hardly worthwhile, providing salvage logging is begun by 1953.

Boise N. F.
Deadwood Area
1951
Forest Insect Survey
Summary

Unit	Area	New Attacks per Acre	Total New Attacks	Survey Method	Remarks
Wilson-Warm Springs- Whitehawk	6,656	.1322	880±269	5% line- plot	Control recommended.
1951 Control Unit	2,904	.1928	560±161	5% line- plot	Figures included in above unit. Area is gross area within control boundary.
Three Mile- Packsaddle	4,376	.0548	240±90	5% line- plot	No control action recommended.
Totals Deadwood Area	11,032	.1015	1120±29		



Boise N.F.
Deadwood Area
1951
Forest Insect Survey
Scale 1" = 1 Mile

LEGEND

— Survey lines

⊙ New Attacks found on plots

Scale 2" = 1 mile

- - - Area to be treated

